FEB 19 1963

GENETICS AND BIOMETRY LABORATORY
GOVERNMENT OF ORISSA

BHUBANESWAR-3
ORISSA, INDIA

1 10 0125

February 12, 1963

Dear Lederberg,

Thank you for your reprint, and Sagan's. I fully agree with your point about the heterogeneity of the Martial climate. The only stars of whose local climates we know anything serious are the earth and the sun, and they are certainly very heterogeneous. To judge from its radio emissions, that of Jupiter may be ever more so.

I don't agree with Sagan's p.167. If Venereal rotation and revolution are synchronous, the poles must be near the twilight line, and any sea would be near the middle of the dark hemisphere. Further, assuming that synchronization was stabilized several hundred million years ago, I should expect that most elements or compounds which could melt on the bright side would have distilled over to the dark one if their boiling points were low enough to allow condensation there. If I am right, there would be a very great difference between the conditions with an infinite synodic period and one of 60,000 days, as regards the solid or liquid surface, though perhaps not the atmosphere.

The first two papers in the next number of the Journal of Genetics are genetics in Bateson's sense, though perhaps not in yours. Anyway we hope to go on those lines, among others. We are getting ahead with human genetics here, and if you come here a few years hence, we hope to have some plant and metazoan genetics to show you. As regards human genetics the breeding systems are so unlike those of other countries that strange effects occur. For we have effective isolates (subcastes) of 10,000 or so, within which inbreeding is strenuously avoided. One of these may have a high frequency of a particular recessive. But it doesn't show up by cousin marriages, for if X and Y know they are cousins, they don't marry. The characteristic feature is as follows. If A is a recessive homozygote, then if the parents of B are both related to the same parent of A, or one to each of A's parents, B is more likely than the average to have a recessive phenotype. In one pedigree of deaf mutism, with 5 sibships including at least one deaf mute, this is what Dronamraju has found. The evaluation of gene frequencies from such data is quite a tough problem, though one can make a reasonable guess. And obviously a little over $\frac{1}{256}$ of the double second cousins of recessives should be recessive. It

Contd...

would do a chap like Morton or Crow a lot of good to come out here and see what such investigations are actually like, besides being introduced to a type of population structure much more like Sewall Wright's models than anything which has yet been examined.

I was glad to meet you and your wife last year, though I certainly did not enjoy the weather, and was held up by fog for three days.

Yours sincerely,

J.B.S. Haldane
(J.B.S. Haldane)

Prof. J. Lederberg,
Department of Genetics,
School of Medicine,
Stanford University,
Palo Alto,
Calif.,
U.S.A.